

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

2

**AMENDMENTS TO THE CLAIMS:**

**Please cancel claim 2 without prejudice or disclaimer and amend the claims as follows:**

1. (Currently Amended) A method of fabricating a semiconductor device, comprising the steps of:  
  
placing a substrate in a chamber;  
  
introducing a gas having a thermal conductivity of 0.1 W/mK or greater into the chamber, thereby contacting the gas with the substrate for stabilization of a temperature of the substrate; and  
  
depositing a desired dielectric layer on or over the substrate in the chamber using a PECVD method after the step of introducing the gas  
  
wherein said gas having a thermal conductivity of 0.1 W/mK or greater comprises hydrogen (H<sub>2</sub>) or helium (He) gas.
2. (Canceled)
3. (Original) The method according to claim 1, wherein a dielectric layer made of one selected from the group consisting of SiCH, SiCHN, and SiOCH is used as the desired dielectric layer.
4. (Original) The method according to claim 1, wherein a SiCH layer is used as the desired dielectric layer;

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

3

and the SiCH layer is deposited on or over the substrate using an organic silane and an inert gas.

5. (Original) The method according to claim 1, wherein a SiCHN layer is used as the desired dielectric layer;

and the SiCHN layer is deposited on or over the substrate using an organic silane, an inert gas, and a nitrogen-containing gas.

6. (Original) The method according to claim 1, wherein a SiOCH layer is used as the desired dielectric layer;

and the SiOCH layer is deposited on or over the substrate using an organic silane, an inert gas, and an oxidizing gas.

7. (Original) The method according to claim 4, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.

8. (Original) The method according to claim 5, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

4

9. (Original) The method according to claim 6, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.
10. (Original) The method according to claim 4, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.
11. (Original) The method according to claim 5, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.
12. (Original) The method according to claim 6, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.
13. (Original) The method according to claim 5, wherein ammonia ( $NH_3$ ) is used as the nitrogen-containing gas.
14. (Original) The method according to claim 6, wherein at least one selected from the group consisting of oxygen ( $O_2$ ), ozone ( $O_3$ ), carbon monoxide (CO), carbon dioxide ( $CO_2$ ), and water ( $H_2O$ ) is used as the oxidizing gas.
15. (Original) A method of fabricating a semiconductor device, comprising the steps of:  
placing a substrate in a chamber;

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

5

introducing hydrogen ( $H_2$ ) or helium (He) gas into the chamber, thereby contacting the gas with the substrate for stabilization of a temperature of the substrate;

introducing an organic silane and an inert gas into the chamber after evacuating the hydrogen ( $H_2$ ) or helium (He) gas; and

depositing a SiCH layer on or over the substrate using the organic silane and the inert gas while plasma is present in the chamber.

16. (Original) The method according to claim 15, wherein the SiCH layer is deposited on a copper wiring.

17. (Original) The method according to claim 15, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.

18. (Original) The method according to claim 15, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.

19. (Original) A method of fabricating a semiconductor device, comprising the steps of:

placing a substrate in a chamber;

introducing hydrogen ( $H_2$ ) or helium (He) gas into the chamber, thereby contacting the gas with the substrate for stabilization of a temperature of the substrate;

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

6

introducing an organic silane, an inert gas, and a nitrogen-containing gas into the chamber after evacuating the hydrogen ( $H_2$ ) or helium (He) gas; and

depositing a SiCHN layer on or over the substrate using the organic silane, the inert gas, and the nitrogen-containing gas while plasma is present in the chamber.

20. (Original) The method according to claim 19, wherein the SiCHN layer is deposited on a copper wiring.

21. (Original) The method according to claim 19, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.

22. (Original) The method according to claim 19, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.

23. (Original) The method according to claim 19, wherein ammonia ( $NH_3$ ) is used as the nitrogen-containing gas.

24. (Original) A method of fabricating a semiconductor device, comprising the steps of:

placing a substrate in a chamber;

introducing hydrogen ( $H_2$ ) or helium (He) gas into the chamber, thereby contacting the gas

with the substrate for stabilization of a temperature of the substrate;

Serial No.: 10/766,921  
Docket No. GNE518US  
ARI.027

7

introducing an organic silane, an inert gas, and an oxidizing gas into the chamber after evacuating the hydrogen ( $H_2$ ) or helium (He) gas; and

depositing a SiOCH layer on or over the substrate using the organic silane, the inert gas, and the oxidizing gas while plasma is present in the chamber.

25. (Original) The method according to claim 24, wherein the SiOCH layer is deposited on a SiCHN layer.

26. (Original) The method according to claim 24, wherein at least one selected from the group consisting of trimethylsilane  $[(CH_3)_3Si]$ , tetramethylsilane  $[(CH_3)_4Si]$ , and trimethylvinylsilane  $[(CH_3)_3SiCH=CH_2]$  is used as the organic silane.

27. (Original) The method according to claim 24, wherein at least one selected from the group consisting of helium (He), argon (Ar), and xenon (Xe) is used as the inert gas.

28. (Original) The method according to claim 24, wherein at least one selected from the group consisting of oxygen ( $O_2$ ), ozone ( $O_3$ ), carbon monoxide (CO), carbon dioxide ( $CO_2$ ), and water ( $H_2O$ ) is used as the oxidizing gas.